METHOD FOR HANDLING OF MESSAGES BETWEEN A TERMINAL AND A DATA NETWORK

FIELD OF THE INVENTION

The present invention concerns a method for handling of messages between a terminal and a data network as well as a corresponding network control entity and network access node and a data network.

BACKGROUND OF THE INVENTION

Recently, communication technology and data networks have experienced a large progress. Data networks for transmitting data either via fixed lines or for wireless transmission find increasing attention. Also, data and/or communication networks combining wireless and wirebound communication are under development. An example for such a network is the UMTS (Universal Mobile Telecommunication Standard) network currently under development and being standardized by 3GPP (3rd Generation Partnership Project). The 3GPP Release 5 UMTS network enables, among various other services, telephony using the Internet Protocol (IP) (VoIP, Voice over IP), or data transmission using the Internet Protocol.

The reference to the UMTS network, however, is not intended to be limiting the present invention and the present invention as described hereinafter may equally be used in other similar networks. However, in order to clearly describe the principles underlying the present invention, the UMTS network architecture is referred to as an example.

Generally, data (voice or other data) are transmitted in units of packets in the UMTS network. A terminal and/or user equipment UE communicates with an access node of the network, identified by an APN (Access Point Name), which node may for example be a GGSN node (Gateway GPRS Support Node, GPRS: General Packet Radio Service). Access node here means an entry node to the network part providing services and being independent of the actual connection technology, i.e. an entry point to the core network. Between the access node and the terminal there is arranged an access network, which in case of a mobile/wireless access comprises a radio access network consisting of radio network controllers RNC and Node_B's (corresponding to GSM base station controllers and base stations, respectively). Since, however, the access network is not concerned in the present invention, the detailed description thereof is omitted.

The access point node, i.e. GGSN, is adapted to communicate with a call state control functional entity CSCF. Generally, in the network part currently serving the terminal this is a so-called proxy CSCF, i.e. P-CSCF. Each terminal has allocated thereto a serving CSCF, S-CSCF located in the "home" network of the subscriber using the terminal. The CSCF in turn is connected to a HSS entity, Home Subscriber Server, largely corresponding in functionality to a HLR in GSM (Home Location Register).

With the progress in data network technology, more and more different services can be provided by the (core) network to the terminal registered thereto. A terminal UE is identified/addressed by an address to which the services are provided. Such an address is referred to as PDP address (Packet Data Protocol). For one such address several contexts, i.e. PDP contexts can be defined. Each context may be active or inactive. A context such as a PDP context has as features/parameters a PDP type identifying the type of protocol used, the PDP address itself as the address of the protocol, a Quality of Service (QoS) profile defining a default QoS for this PDP context, and a GGSN address/APN (Access Point Name) defining the access point of the terminal to the network, i.e. a logical address of the node and/or server that is serving this PDP context.

Note that the present invention is not limited to PDP contexts but any similar concept may likewise be applicable in connection with the present invention as long as a "protocol environment" and/or context is concerned.

Thus, for a terminal communicating via a specific APN/GGSN using a specific protocol, a specific QoS is defined. An example of such a protocol is the Session Initiation Protocol SIP. (Another example would be WAP, Wireless Application Protocol.) To keep the explanation simple, however, the subsequent description focuses on SIP, while this is to be noted as not limiting the present invention.

SIP is a multi-purpose protocol. On one hand it is used for setting up telephone calls (note that SIP does not carry the voice itself), where fast and reliable delivery of signaling messages is vital (QoS=real time (RT)). On the other hand it can be used to carry objects and initiate services which do not have hard real-time delivery requirements, such as instant messaging, presence updates (e.g. location area updates) or push services. ("Push service" is intended to mean any service which asynchronously sends some contents without being requested by the receiving side.)

In 3GPP Release 5, a signaling PDP context may be used to carry SIP signaling between a UE and P-CSCF. The signaling PDP context may require enhanced QoS, like e.g. higher priority than other PDP contexts. Enhanced QoS is important for SIP session setup messages, but not for all SIP messages. For example, SIP messages used for push services do not have to be carried using the enhanced QoS provided by the signaling PDP context.

This causes SIP traffic volume to be quite large, and makes ,signaling PDP provisioning difficult, since all SIP messages have to be treated similarly regardless of their real requirements. The problem will become significant especially when GERAN (GSM/EDGE RAN, EDGE=Enhanced Data Rates for GSM Evolution, RAN=Radio Access Network, GSM=Global Standard of Mobile Communication) access technology is used.

SUMMARY OF THE INVENTION

Hence, it is an object of the present invention to propose an improved method for handling of messages between a terminal and a data network which solves the above problems, as well as a corresponding network control entity and network access node and a data network.

According to the present invention, this object is for example achieved by a method for handling of messages between a terminal and a data network, wherein messages of a specific protocol are handled using defined specific contexts for messages of said protocol, and wherein messages based on the same specific protocol relate to different service categories, said method comprising the steps of: receiving a message at said network, analyzing said service category of said received message, and assigning a specific context to said message dependent on the analyzed service category.

According to advantageous further developments of the present invention,

said assigning comprises the further step of marking said message dependent on the analyzed service category, and setting a routing indicator dependent on said marking, said routing indicator being adapted to selectively assign said specific context to said message;